

### High Mobility Artillery Rocket System (HIMARS)

**H**IMARS, the newest member of the Multiple Launch Rocket System (MLRS) family, is intended to provide light, medium, and early-entry contingency forces an all-weather, indirect, area fire weapon system to strike high-payoff threat targets at all depths of the tactical battlefield. HIMARS units will functionally and operationally mirror current MLRS units, and will typically execute general support, general support reinforcing, and reinforcing missions.

The HIMARS launcher is self-loading with a crew cab, a hydraulic control system, and onboard fire control and navigation systems. The HIMARS fire control system, electronics, and communications units are interchangeable with the M270A1 MLRS launcher. The launcher module is mounted on a modified Medium Tactical Vehicle, 5-ton chassis. HIMARS has a three-man crew, but will be capable of one-man operation when necessary. It carries a single pod of six surface-to-surface artillery rockets or one Army Tactical Missile System (ATACMS) missile. HIMARS is transportable by C-130 aircraft for inter- and intra-theater deployment.

The HIMARS system consists of a launcher, two resupply vehicles (RSV) and two resupply trailers (RSTs). The RSV is a medium tactical vehicle truck with an on-board crane and secure radio communications. The RST is a standard M1095 five-ton trailer. Both the RSV and RST can carry two rocket or missile launch pods.

The HIMARS program was initiated in January 1995 as part of the Rapid Force Projection Initiative Advanced Concept Technology Demonstration (ACTD). Three of the four prototype launchers produced for the ACTD went to the 3<sup>rd</sup> Battalion, 27<sup>th</sup> Field Artillery at Fort Bragg, North Carolina for a 2-year extended user evaluation. The 3/27 Field Artillery retained those launchers for normal operations.

The HIMARS program entered Engineering and Manufacturing Development as an Acquisition Category (ACAT) II system following an October 1999 Milestone II review. The OSD Director of Strategic and Tactical Systems approved the HIMARS Test and Evaluation Master Plan (TEMP) on December 15, 1999. Because of an anticipated increase in production quantities and special interest in the program, OSD elevated HIMARS to ACAT ID in May 2002. The program was placed under operational test oversight in April 2002 in anticipation of this decision. This program is not under oversight for Live Fire because it does not provide crew protection; however, DOT&E is participating in the Ballistic Survivability Program.

The Milestone C Review is scheduled for March 2003, with the Full-Rate Production Decision Review in June 2005. The Army plans to equip its first unit with HIMARS in March 2005.

#### TEST & EVALUATION ACTIVITIES

- **Contractor Development Tests:**  
Component qualification testing is ongoing. System Integration Tests have been completed.
- **Production Qualification Tests:**  
Nuclear effects tests, formal qualification tests (initial software version), and the preliminary logistics demonstration have been completed.



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# ARMY PROGRAMS

The automotive and environmental testing are underway. However, problems with the reload system have caused the Army to defer the wartime tempo portion of the endurance testing until FY04 when it can be conducted with Low-Rate Initial Production-configured launchers. During two flight test series between November 2001 and August 2002, HIMARS fired each of the MLRS Family of Munitions. The Extended System Integration Test (ESIT), a combined developmental/operational test, was conducted with one launcher and a soldier crew in August 2002. Following the ESIT, HIMARS conducted a C-130 deployability demonstration with an H-model C130. In November and December 2002, one HIMARS launcher participated in limited operational tests at the Cold Regions Test Center in Alaska.

- **Ballistics Survivability Program:** Cab investigation and blast testing have been completed. Component experimentation started in November 2002.

## TEST & EVALUATION ASSESSMENT

The launcher mechanical and hydraulic hardware design is 90 percent stable, but has experienced problems that have led to the redesign of the reload manifold and boom extension gearbox. The launcher chassis, RSV, and RST are mature, fielded, production vehicles, and the RSV crane is a commercial item. Ninety-five percent of the software is common with the fielded M270A1 launcher, and the initial version of HIMARS software was tested during August in the ESIT. All but one of the Fire Control System line replaceable units are common with the M270A1, and that HIMARS launcher interface unit has completed component-level qualification testing. However, the M270A1 program is developing replacements for the fire control panel and the weapons interface unit that will not be available for testing until next year following the Milestone C review.

A HIMARS Project Office accuracy analysis of HIMARS flight test results suggests that there is no statistically significant difference in the accuracy of basic rockets fired from a HIMARS launcher and those fired from an M270 MLRS launcher. DOT&E will conduct its own analysis once the flight tests are complete.

Based on the results of the ESIT, during which there were no live rocket or missile firings, HIMARS reliability is approximately half of the Operational Requirements Document (ORD) required 58 hours Mean Time Between System Abort. Data from the flight tests suggest that the actual reliability when firing live munitions is probably lower than the ESIT estimate. The Army is developing a reliability growth strategy to achieve and demonstrate the required reliability before Initial Operational Test (IOT).

Because the HIMARS cab does not provide ballistic protection for the crew, the crew must rely on concealment between missions, as well as rapid displacement after missions to survive. ESIT results indicate that the HIMARS time to displace from the firing point after a mission is similar to that of the M270A1 launcher, both of which are shorter than that of the currently fielded M270 launcher. The HIMARS firing point dwell time for ATACMS missions easily meets requirements.

DOT&E is working with the Army to revise the TEMP for Milestone C. Issues of concern include an appropriate location for the IOT, the amount of live fire in the ground phase of the IOT, and the TEMP and ORD submission timeliness.